

**United States Patent** [19]  
**Crofoot**

[11] **3,894,368**

**NOT AVAILABLE COPY**

[45] **July 15, 1975**

[54] **BEAM END SOCKET CONCRETE FORM BOX**

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[22] **Filed:** Feb. 7, 1974

[21] **Appl. No.:** 440,337

**Related U.S. Application Data**

[63] Continuation-in-part of Ser. No. 266,562, June 27, 1972, abandoned.

[52] **U.S. Cl.** ..... 52/105; 52/699; 52/704

[51] **Int. Cl.** ..... E04c 5/20

[58] **Field of Search** ..... 52/105, 699, 698, 711,  
52/704, 709, 701, 710; 220/3.4

[56] **References Cited**

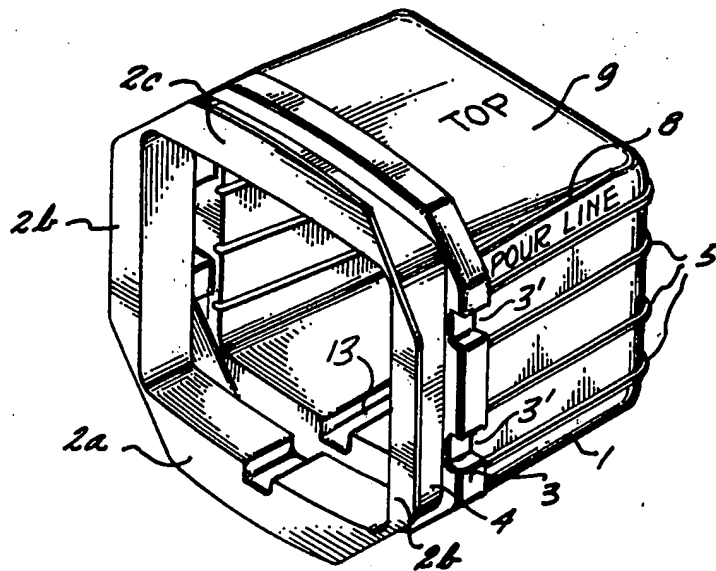
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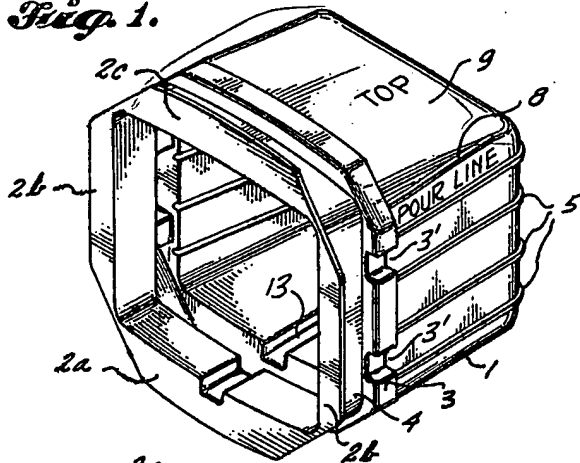
[57] **ABSTRACT**

To provide a moistureproof socket for a beam end in the top of a poured concrete wall, flanges on the open end of a concrete form box are secured to a form wall. Parallel external ribs in planes perpendicular to the open end of the box stiffen the box and anchor it in poured concrete. A projection extending circumferentially adjacent to the open end of the box strengthens such box end against the pressure of poured concrete and prevents the box from being pulled out of the wall after it is formed. Removal of the top side of the box after the concrete has been poured affords access for lowering a beam end into the socket formed by the box.

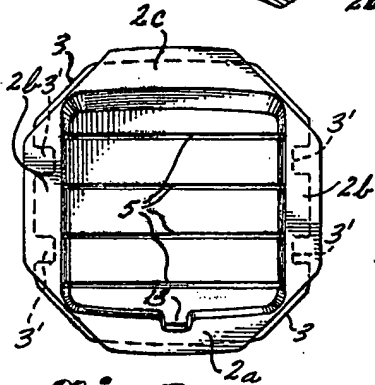
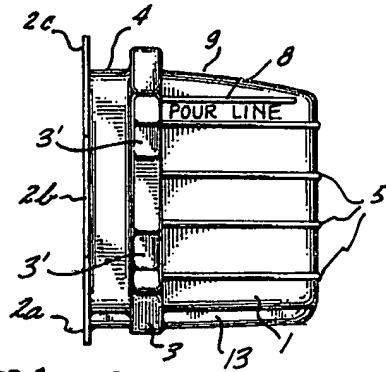
**2 Claims, 11 Drawing Figures**



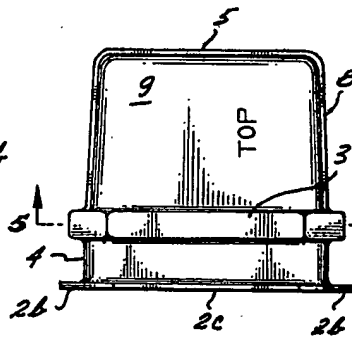
*Fig. 1.*



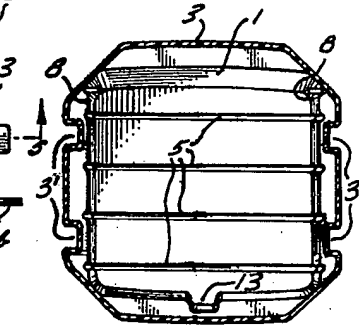
*Fig. 2.*



*Fig. 3.*

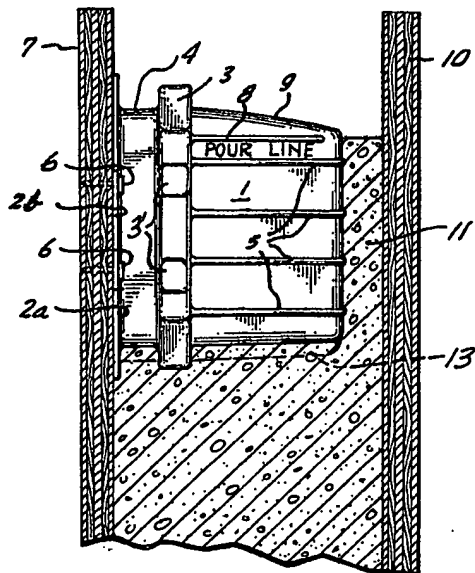


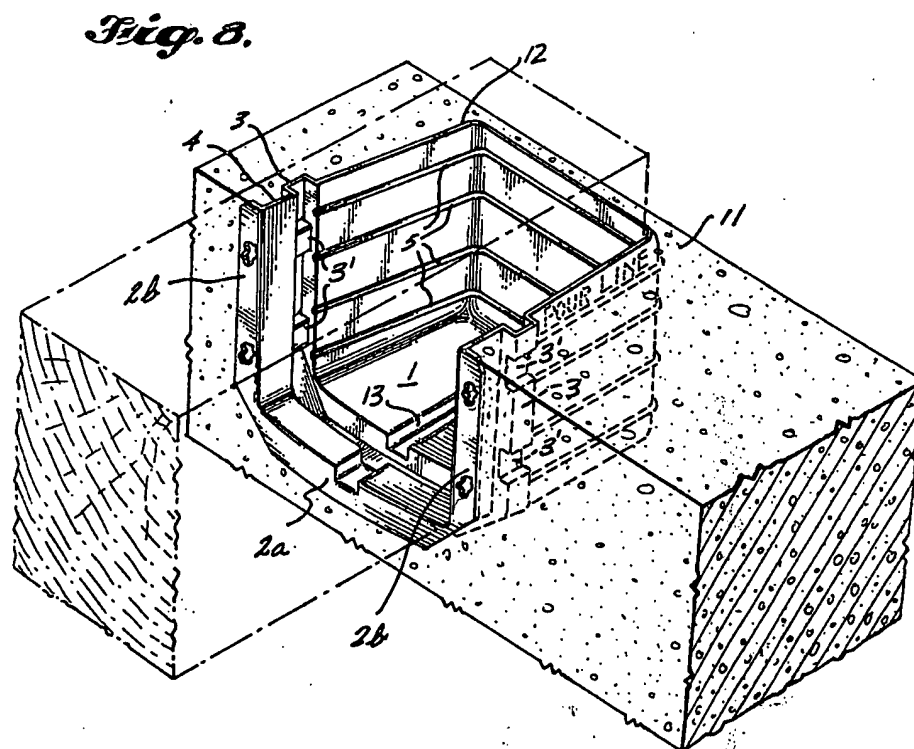
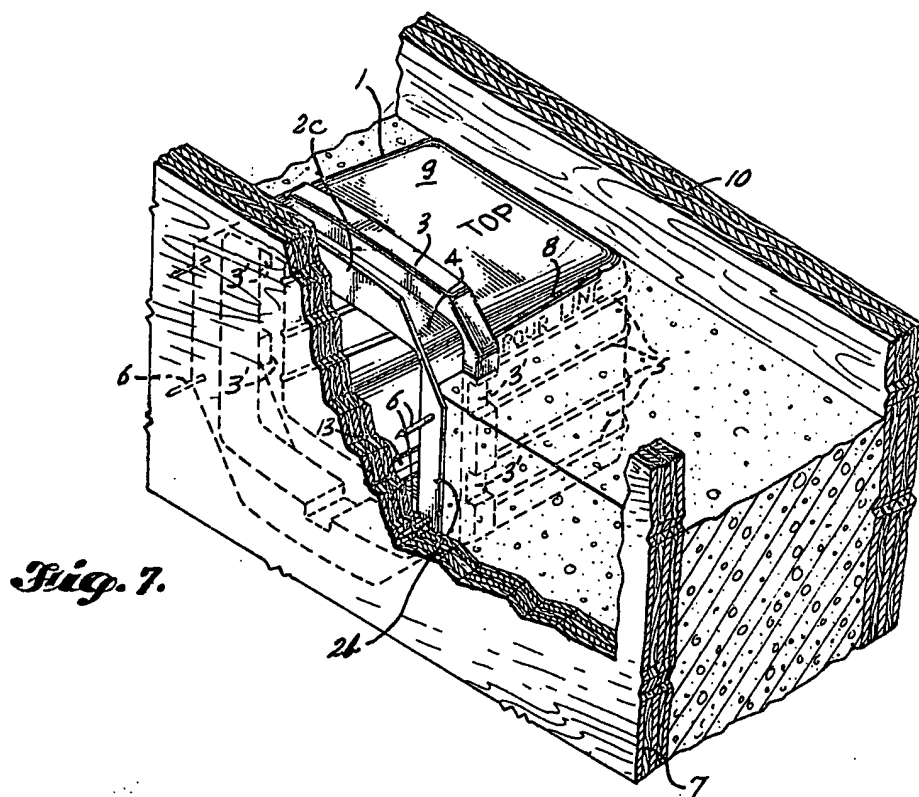
*Fig. 4.*



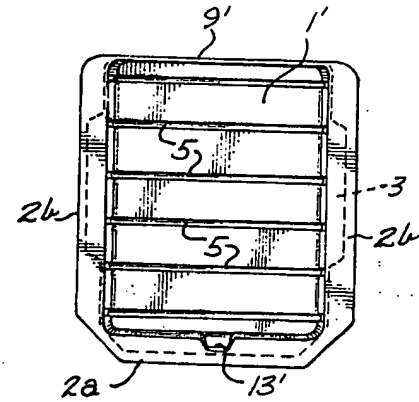
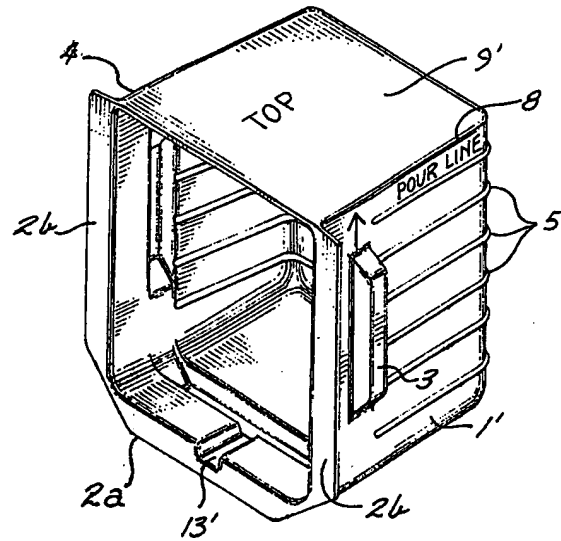
*Fig. 5.*

*Fig. 6.*

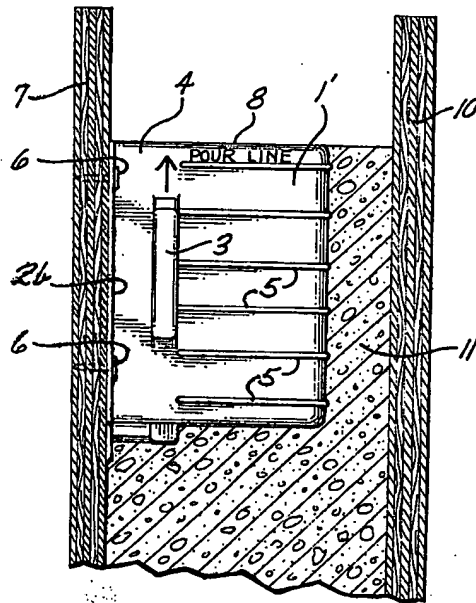




*Fig. 9*



*Fig. 10*



*Fig. 11*

**BEAM END SOCKET CONCRETE FORM BOX**

This application is a continuation-in-part of patent application Ser. No. 266,562, filed June 27, 1972, and now abandoned for Beam End Socket Concrete Form Box.

The beam end socket concrete form box of the present invention is mounted on a concrete form for embedment in the upper portion of a poured concrete wall to form a socket for a beam end.

A principal object of the present invention is to provide a waterproof, plastic concrete form box for forming a beam end socket which is easy to install in a concrete form, is economical to make and will protect the beam end from moisture so that the beam need not be treated or wrapped.

A further object is to provide such a concrete form box which has an open end, yet which end is strengthened sufficiently to prevent appreciable deformation or collapse of the open end of the box by pressure of fluid concrete on its sidewalls.

Another object is to provide a concrete form box of thin and light material, the body of which is stiffened because of its structure, so as to prevent the box body from being deformed appreciably or collapsed by fluid poured concrete.

An additional object is to provide index lines on a concrete form box which can be used for reference in setting the form box in a concrete form and, also, as a reference for pouring concrete in the form.

In providing a modified type of form box it is an object to make the top of the form box flat for disposition substantially flush with the top of a concrete pour in a wall form.

It is also an object to provide concrete form boxes which can be nested readily for shipment.

FIG. 1 is a top perspective of a beam end socket concrete form box of the present invention; FIG. 2 is a side elevation of such box; FIG. 3 is a front elevation of such box; FIG. 4 is a top plan of such box, and FIG. 5 is a vertical section taken through such box on line 5—5 of FIG. 4.

FIG. 6 is a vertical section through a concrete wall form showing in elevation a beam end socket concrete form box embedded in concrete poured in the form.

FIG. 7 is a top perspective of a concrete form in which a beam end socket concrete form box has been installed, parts being broken away.

FIG. 8 is a top perspective of a fragmentary upper portion of a poured concrete wall, in which a beam end socket concrete form box is installed in condition to receive a beam end.

FIG. 9 is a top perspective of a modified form of beam end socket concrete form box according to the present invention; FIG. 10 is a front elevation of such box; and FIG. 11 is a side elevation of such box embedded in concrete poured in a wall form.

Sockets have been formed in the tops of poured concrete walls in the past, principally by the use of solid blocks secured to form walls. It is not economical to preserve such blocks and to transport them from job to job, and, consequently, it has been customary to cut blocks of the desired size for each required beam end socket. Such operation is time-consuming and necessitates the provision on the job of material suitable for such forms. Also, the form blocks must be stripped out of the depression left by them after the wall has been poured.

The form box of the present invention may be made economically of thin sheet molded plastic. The body 1 of the box is tapered away from its open end, so that the boxes can be nested conveniently for shipment. The box is of generally rectangular cross section, and flanges project outwardly from the edges of its end opening to stiffen such opening. The box is placed in a concrete form with its open end in a vertical plane with two opposite sides in substantially parallel, spaced upright planes, and with top and bottom walls in substantially horizontal planes. A bottom flange 2a projects downward from the bottom wall at the box opening, two side flanges 2b project oppositely from the upright sidewalls at the box opening, and a top flange 2c projects upward from the top of the box at the box opening.

While the flanges 2a, 2b and 2c stiffen the open end of the box body 1, it is desirable to provide an additional stiffening projection 3 extending circumferentially and disposed in a plane parallel to the plane of the box opening and spaced a short distance from the box opening, forming an internal circumferential groove. Such projection extending circumferentially also leaves an outer circumferentially extending groove 4 between that projection and the flanges 2a, 2b and 2c on the open end of the box body. To strengthen and stiffen the box body further, a series of parallel external ribs 5 extend around the sidewalls and closed end of the body in planes perpendicular to the plane of the body opening, as shown best in FIGS. 1 to 5.

To form a beam end socket in the upper portion of a concrete wall by use of the form box of the present invention, the side flanges 2b are secured by nails 6 or staples to the inner side of one wall 7 of a concrete form, as shown in FIGS. 6 and 7. Notches or interruptions 3' in the projections 3 afford easy access to the flanges 2b for driving the nails or staples. The box can be secured to the form wall in this manner before the form wall is erected, if desired. An index line 8 is provided on each upright side of the form box labeled "Pour Line," which serves as a reference for positioning the box in the desired position on the form wall. When the form wall is erected, the index lines 8 further serve as reference lines for indicating the level to which fluid concrete is poured in the form, so as to leave the top of the form box exposed after the form has been poured, as shown in FIGS. 6 and 7.

It is preferred that the distance between the open end and the closed end of the form box body 1 be somewhat less than the spacing between the two form walls 7 and 10, as shown in FIG. 6, so that a body of concrete 11 will be provided behind the form box to leave the outer side of the poured wall unbroken. Also, concrete set between the flanges 2a and 2b and the projection 3 will hold the box against movement away from the concrete layer 11. After the fluid concrete has been poured and set the form walls 7 and 10, as shown in FIGS. 6 and 7, will be stripped off pulling the heads of form box nails 6 through the thin side flanges 2b. As shown in FIG. 8, the top line of the form box can be cut out readily with a jackknife to provide access for the end portion of a beam to be lowered into the socket formed by the box, as indicated in dot-dash lines in that figure. The cut wall edge 12 of the box will be substantially flush with the upper surface of the poured concrete wall.

The portion 9 of the concrete form box between the circumferential projection 3 and the closed end of the box tapers toward such closed end so that, when nested for shipment, the side of each projection 3 nearer the closed end of the box will engage the side of flanges 2a, 2b and 2c of the next box farther from the closed end. The bottom of the box may have in it a central groove 13 to provide ventilation beneath the end portion of the beam received in the socket, if desired.

The modified box shown in FIGS. 9, 10 and 11 is very similar to the box shown in FIGS. 1 to 8, inclusive, except for the top. The body 1' includes the lower flange 2a and the upright side flanges 2b bordering the box opening. The hollow projections 3 extend circumferentially along opposite sides of the body parallel to and spaced from flanges 2b. Such projections are interrupted to enable mounting nails 6 to be driven through the upright flanges 2b into a form wall 7 as shown in FIG. 11. The bottom of the box has in it a projection extending circumferentially parallel to and spaced from flange section 2a. Such projection forms an internal groove which meets the central groove 13 to provide ventilation.

A principal difference between the box of FIGS. 9, 10 and 11 and the box of FIGS. 1 to 8 is the top 9', which is flat throughout its extent instead of having a flange bordering the box opening and a hollow projection projecting upward from the plane of the top and spaced from the upper edge of the opening. The top 9' is coplanar with the two pour lines 8 on opposite sides of the box, as shown best in FIGS. 10 and 11.

In installing the box 1' of FIGS. 9, 10 and 11 in a concrete form the nails 6 should be driven into the form wall 7 in positions to locate the top 9' of the box level with the top of the concrete pour to be made. When the pour 11 has been made, the concrete can be screeded off so as to be flush with the top 9' of the box. After the concrete has set and the form wall 7 has been removed, the top 9' of the box can be cut out to leave a residual box structure of the same type as shown in FIG. 8.

I claim:

1. A beam end socket concrete form box comprising a box body of generally rectangular cross section having two opposite upright generally parallel sides and an open end, edge flanges projecting outwardly from said two opposite upright sides, respectively, at said box

body open end, elongated outward projection means projecting from said two upright sides, respectively, of said box body, each of said projection means being spaced from and having its length extending generally parallel to the flange projecting outwardly from its upright side for embedment in concrete to prevent movement of said box body in a direction perpendicular to said box body open end, the inner side of said projection means being hollow for providing said projection means with a thin wall and said projection means being interrupted at locations for enabling nails to be driven through said flanges at locations in registration with the interruptions in said projection means, said box body having a plurality of elongated parallel generally horizontal ribs on its upright sides at the side of said projection means opposite said edge flanges for stiffening said box body upright sides, and index lines on the upright sides of said box body disposed substantially in a plane perpendicular to the plane of said box body open end for indicating the level to which concrete is to be poured.

2. A beam end socket concrete form box comprising a box body of generally rectangular cross section having two opposite upright generally parallel sides and an open end, attachment means projecting outwardly from said upright sides of said box body open end transversely of said end, elongated outward projection means projecting from said two upright sides, respectively, of said box body, each of said projection means being spaced from and having its length extending generally parallel to the edge of said box body open end formed by the upright side from which said outward projection means projects for embedment in concrete to prevent movement of said box body in a direction perpendicular to said box body open end, the inner side of said projection means being hollow for providing said projection means with a thin wall, said projecting means being interrupted at locations for enabling nails to be driven through said flanges at locations in registration with the interruptions in said projection means, and said box body having a plurality of elongated parallel generally horizontal ribs on its upright sides located at the side of said projection means opposite said box body open end for stiffening said box body upright sides.

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UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 3,894,368 Dated July 15, 1975

Inventor(s) Percy Crofoot

It is certified that error appears in the above-identified patent  
and that said Letters Patent are hereby corrected as shown below:

Column 4, line 39, cancel "flanges" and insert --attachment  
means--.

Signed and Sealed this

twenty-fifth Day of November 1975

[SEAL]

Attest:

RUTH C. MASON  
Attesting Officer

C. MARSHALL DANN  
Commissioner of Patents and Trademarks